APPENDIX II

CLOSURE PLAN AMENDMENT DOCUMENTATION

IRIS ENVIRONMENTAL

Via Email

3 October 2008

Susanne Perkins, RCRA Project Manager
US EPA, Region IX
RCRA Facilities Management Office
75 Hawthorne Street (WST-4)
San Francisco, California 94105

Re: Request for Groundwater Sample Location Modification
Former Romic Environmental Technologies Corp. Facility
Chandler, Arizona

Dear Ms. Perkins:

On behalf of Romic Environmental Technologies Corp. ("Romic"), Iris Environmental ("Iris") is submitting this request for approval to modify the unit closure groundwater sampling location for the former Canopy Area HWMU. As discussed in the draft work plan prepared by LFR Inc. ("LFR") dated August 15, 2008 and entitled "*Deep Soil Gas Sampling, Grab Groundwater Sampling, and Aquifer Characterization Work Plan"*, investigative borings will be used to collect groundwater samples from the upper portion of the regional aquifer. This is the same water bearing zone scheduled for groundwater sampling as part of the closure sampling and analysis program described in Appendix B of the Closure Plan. One of the investigation borings, SVE-04, will be drilled at a location situated immediately downgradient of the former Canopy Area HWMU border.

As discussed on September 18, 2008, the groundwater sample scheduled to be collected from boring SVE-04 (see Figure S-10, attached) will be considered as a replacement for the unit closure groundwater sample planned for the former Canopy Area. The groundwater sample will be collected using a Maxi-SimulProbe® and tested for the list of analytes presented in Table S-2 of Appendix B of the Closure Plan. A soil boring extending down to the top of the aquifer will still be drilled in the former Canopy Area in accordance with the Closure Plan.

The rationale for approving the relocation of the groundwater sample collection point is that the new location is immediately downgradient of the perimeter of the canopy area. Possible releases in the area of the canopy that might migrate to groundwater would likely impact groundwater and begin to travel in the downgradient direction of groundwater flow. A sample collected in the middle of the canopy area would have no greater potential to detect groundwater impacts than a sample collected at the downgradient edge of the canopy.

Please do not hesitate to contact me at (510)-834-4747 x21 or calger@irisenv.com if you have any questions or comments regarding this request.

Sincerely,

IRIS ENVIRONMENTAL

Christopher S. Alger, P.G.
Principal Engineering Geologist

Attachment: Revised Figure S-10

cc: Esther Manuel, Lone Butte Industrial Development Corporation
Wayne Kiso, Clarus Management Solutions
John Moody, USEPA
Glenn Stark, Gila River Indian Community Department of Environmental Quality

MAINT.

TRUCK MAINTENANCE

DRUM STORAGE

BUILDING #1

LOCATION OF PROPOSED BORING SVE-04

CANOPY

RAIL LOADING & UNLOADING

ROLL-OFF BIN STORAGE

RAINWATER HOLDING TANK

TA

DRUM CRUSHER

WASTE STORAGE TANKS

"C1"

"D1"

WASTE STORAGE TANKS

"B"

"A"

AEROSOL UNIT

"C2"

WEST BAY PROCESSING AREA

EAST BAY PROCESSING AREA

"D2"

TANK CAR

"E"

"F"

VACUUM POT UNIT

THIN FILM UNIT

"C3"

"D3"

POLY DRUM CUTTER

CONTROL ROOM

VOC SKID

DISTILLATION UNIT

"C4"

COOLING TOWERS

"D4"

ELECTRICAL PANEL

BOILER

"G"

BOILER BLOWDOWN TANK

LAB

OFFICE

OFFICE

OFFICE

LOCKER ROOM/LUNCHROOM

OFFICE

NON-HAZARDOUS DRUM STORAGE BUILDING #2

PARKING

ENTRANCE GATE (ROLLING GATE)

PARKING

EXIT GATE (ROLLING GATE)

PARKING

ALLISON ROAD

EXPLANATION:

- Soil boring
- Soil boring and groundwater sample location
- Alternative groundwater sampling location
- HWMU closure areas
- SWMU closure area
- Estimated subslab liner location

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SCALE IN FEET

IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

HWMU and SWMU Closure Subsurface Sample Locations
Romic Southwest
Chandler, Arizona

Figure
S-10

Drafter: EC

Date: 8/12/08 Revised 9/30/08

Contract Number: 07-555-B

I:\CAD\07-555-B\Sampling Plan-1.dwg

ROMIC
EXCELLENCE THROUGH COMMITMENT

29 December 2008

Ms. Susanne Perkins
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, California 94105

Re: Request for Extension of Time to Complete Closure
Romic Southwest Facility, EPA ID No. AZD 009 015 389

Dear Ms. Perkins:

Romic Environmental Technologies Corp. ("Romic") respectfully submits this request for an extension of time to complete the RCRA closure of its former Romic Southwest interim status facility. This request is being made because closure activities will, of necessity, continue beyond February 16, 2009. We have come to this conclusion based on our detailed work planning efforts, the results of which are shown on a Gantt chart for the project, which is attached to this letter.

The factors that will cause closure to extend beyond February 16, 2009, are:

- *Work activities planned to avoid interference between crews/personnel*

Careful consideration needed to be made in project planning in order to avoid contractor personnel or crews getting in each other's way. Interference between crews or personnel could result in project delays and increased personal hazards.

- *Work activities planned to avoid potential of cross contamination and interference between above-ground decontamination work and subsurface drilling and sampling*

If certain decontamination activities were to be conducted concurrently with coring, drilling, or soil/groundwater sampling, there could be a negative impact on subsurface analytical results or, even more seriously, actual impact to the subsurface. Work has been planned to minimize potential cross-contamination problems.

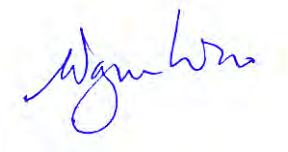
- *Subsurface conditions present difficulties for drilling*

We have found, through recent experience, that subsurface conditions make for slow, difficult drilling. If anything, the current schedule is optimistic when it comes to the time allotted for drilling.

Overall, the schedule represents a reasonable plan for completion of work. It allows adequate time for our contractors to safely and compliantly execute the necessary tasks to achieve clean closure. The schedule shows an anticipated completion date in July, 2009. However, due to the possibility of unforeseen circumstances, particularly in the subsurface investigation phase, we are requesting an extension until August 14, 2009. Our final closure certification report will be submitted to you on or before that date.

Please contact me if you have any questions concerning this request.

Sincerely,



Wayne Kiso
President

Attachment: Gantt Chart Schedule of Closure Activities

cc: Cheryl Nelson

Closure File

ROMIC SOUTHWEST FACILITY CLOSURE
STANDARD OPERATING PROCEDURES

January 6, 2009

Revised February 20, 2009

Contents

Section 1

1.0 Standard Operating Procedures Overview

The following standard operating procedures (SOPs) describe the methods and procedures to be used by Clean Habors Environmental Services, Inc. (CHES) for the decontamination of hazardous waste management units (HWMU) and one solid waste management unit (SWMU), and the verification whether decontamination was done successfully based on the intended disposition. The decontamination and verification procedures are in accordance with the Romic Southwest Facility Closure Plan (Closure Plan) dated August 15, 2008.

These SOPs address decontamination and verification procedures for process units, tanks, piping, pumps, valves, and other small equipment associated with the HWMUs and SWMU. The SOPs also address the decontamination and verification of concrete containment pads, berms, sumps, and other concrete surfaces having the potential of direct contact with or exposure to wastes. Tanks, equipment, and concrete surfaces subject to decontamination are listed in the Romic Southwest closure plan in Table 1 (*Inventory of Units and Equipment)*.

The clean up methods and procedures in these SOPs are based on the criteria described in Section 5.4 of the Closure Plan (*Decontamination Procedures*). The standards for decontamination of tanks, equipment and concrete surfaces are found in Table 2 of the closure plan (*Closure Performance Standards)*. The methods used for verification are based on the Romic Southwest Sampling and Analysis Plan (SAP) and determination of disposition are based on the decision trees for tanks, equipment, and concrete surfaces found in the SAP (Closure Plan Figures S-1 through S-8).

All work will be documented using checklists to verify the performance of decontamination and verification steps in accordance with these procedures.

1.1 List of Appendices

Appendix A lists the inventory of units and equipment at the facility, and specifies the SOP or SOPs that apply to each unit.

Appendices B1–B4 are completion checklists for decontamination SOPs.

Appendices B5 –B7 are forms for documenting the verification of decontamination for tanks/major equipment, small equipment, and concrete, respectively.

Appendix C sets forth the sample numbering scheme to be used for rinsate samples.

Appendix D illustrates and describes the rinsate recycling system to be used on the project.

1.2 Definitions

10% LEL – Concentration in air equal to ten percent of the lower explosive limit.

Lower Explosive Limit – The lowest concentration of a substance or substances, in air, that will ignite explosively when exposed to an ignition source.

Major Process Equipment – is equivalent to “Process Equipment” as referenced in the Closure Plan.

Rinsate - refers to water used as a rinse on tanks, equipment, and concrete surfaces, as well as water used in submersion tanks. Rinsate will only be used once before it is recycled or disposed.

Washwater - refers to all forms of decontamination wash, soak, and flushing solutions containing 5 – 25% low phosphate Alconox® (detergent), used to clean tanks, equipment, and concrete surfaces.

1.3 Temporary Waste Storage

Several tanks will be used for temporary storage of spent washwater and rinsate.

1.3.1 Spent washwater will be collected and stored in a tank that has not been previously decontaminated. The spent washwater will subsequently be transferred into a bulk tanker. The tank that was initially holding the spent washwater will be washed and the resulting washwater will be collected in the bulk tanker. The washwater will be tested to determine proper disposal.

1.3.2 Spent rinsate will be collected and stored in a tank that has already undergone decontamination but not yet verified clean. Spent rinsewater will be recycled for reuse (Refer to Appendix D for the Spent Water Recycling System). After rinsing has been completed, the spent rinsate will be transferred into a bulk tanker. The tank that was initially holding the spent rinsate will be rinsed and the resulting rinsate will be collected in the bulk tanker. The rinsate will be tested to determine proper disposal.

1.3.3 Final rinsate from sumps or low lying areas in the secondary containment will be pumped to a temporary holding tank, 275-gallon totes, or other containers located within secondary containment for recycling or for determination of proper disposal.

Section 2

2.0 Decontamination of Tanks, Vessels, and Major Process Equipment

This section describes the procedures for the decontamination of tanks, vessels, and major process equipment required under the Closure Plan. Major process equipment refers specifically to the tank-like components of the thin film evaporator system, VOC system, distillation column system, and other large equipment that requires in-place decontamination before any disassembly.

Other equipment covered in this section includes process equipment supports, structural framing and areas of overhead enclosures impacted by the presence of tanks, vessels, and process equipment.

CHES will use the SOP Completion Checklist in Appendix B1 to document decontamination performance in accordance with this section.

2.1 Decontamination Location

Decontamination will be conducted “in-place” for all tanks, vessels and major process equipment unless they are located in areas not having adequate secondary containment. In this case, the items will be inspected, drained of any free liquids, and moved to a bermed containment area before decontamination.

2.2 Initial Inspection

Tanks, vessels and major process equipment interiors will be inspected for vapors and checked for confined space requirements. A 4-gas meter will be used for monitoring. CHES will utilize confined space monitoring and entry procedures found in the CHES Health and Safety Plan.

Should monitoring indicate the need for purging or venting (e.g., >10% LEL), CHES will vent the tank, vessel, or major processing equipment using an intrinsically safe blower to push fresh air though the sidewall opening and out through an opened port located on the top. An atomized water spray will be positioned at the top of the tank just below the opened port to knock down vapors and continuous monitoring will be conducted at the outlet port to insure <10% LEL outside the tank at all times.

All accessible tank and equipment ports, manways, hatches, or inspection points will be opened and allowed to air out.

CHES will proceed to Section 6 of these SOPs if the process unit, tank, or equipment is inspected and found to be free of visible contamination and no presence of organic constituents is indicated using a calibrated 4-gas meter.

Containment pads (farms) will be checked to ensure adequate containment of waste from washing and rinsing.

2.3 Decontamination Set Up

Decontamination set up considerations will include the erection of scaffolding (for equipment systems higher than 6 feet without fixed elevated work surfaces) and the installation of spray barriers or protective sheeting whenever there is a possibility of overspray beyond the containment area.

Additional set up of decontamination area facilities includes placement of washing equipment and supplies, water sources, and washwater collection points. Ingress and egress will be limited to a single retaining wall stairwell or ladder. Emergency equipment and PPE decontamination stations will be set up.

Tank, vessel or process equipment drain lines/valves will be connected to a temporary storage tank to hold the spent washwater.

2.4 Collection of Solids and Sludge

Any accumulated debris or sludge found in the bottom of a tank, vessel or process equipment will be collected and placed into DOT containers or totes for waste determination and proper disposal.

2.5 Flushing

If needed, flushing irregular internal surfaces will consist of filling chambers or voids with washwater or a sodium hydroxide solution to loosen and dislodge contamination located in small recesses or hidden interior spaces. This washwater will be transferred with other spent washwater to a temporary storage tank.

2.6 Pre-Soak

Heavily stained, discolored, or corroded exterior or interior surfaces may need to be pre-soaked before pressure washing with washwater for 30 minutes to 1 hour.

2.7 Decontamination Process

Decontamination will be performed by pressure washing of the interior and exterior surfaces using high pressure washwater at or above 2500 psi. Pressure washing will start from the top of the tank, vessel or process equipment and proceed downward. Pressure washing of irregular internal chambers and voids will be conducted using a mole or wide angle rotor washing attachment. If manways are available, these will be opened and accessed if needed.

The resulting spent washwater will be drained or pumped out from the existing drain lines/valves. Spent washwater will be transferred to a temporary storage tank.

2.8 Rinsing

Following pressure washing, a thorough exterior and interior rinse consisting of clean water will be applied to surfaces. After the first rinse, a second rinse using a clean water pressurized spray will be applied.

The rinsate will be transferred to a temporary storage tank.

2.9 Verification

Following the above steps, verification of successful decontamination will be conducted in accordance with Section 6 below.

2.10 Hydroblasting Contingency

Should general pressure washing of tank surfaces require more vigorous dectontamination, the following course of action will be taken using hydroblasting of selected surfaces to remove rust, scale, or stubborn build up of contamination.

2.10.1 All initial tank work and washing described in sections 2.1 through 2.7 will be conducted, completed, and recorded on the SOP checklist (Attachment B1)

2.10.2 All spent hydroblasting rinse water will be allowed to gravity drain into the containment pad blind sump and pumped directly to the temporary holding tank located in Tank Farm D.

2.10.3 Additional safety measures to include the erection of plastic or cloth barriers to protect against overspray or flying projectiles escaping outside the control zone

2.10.4 Hydroblasting will be conducted in accordance with the safety and operational policies found in the Clean Harbors hydroblasting safety and procedure guidelines.

2.10.5 All manways on tanks will be opened prior to commencement of high pressure spraying.

2.10.6 Hydroblasting operators will work outside the tank using extended nozzles to reach interior surfaces areas.

2.10.7 The interior tank surfaces will be visually checked every few minutes to monitor and determine results.

2.10.8 After completion of hydroblasting and allowing for complete drying, the tank will be entered and inspected in accordance with the verification SOP (Section 6).

2.10.9 Loose scale or material in pitted surfaces will be manually removed using wire brushes or hand grinders and tank surface re-verified.

2.10.10 Solids collected from hydroblasting will be collected from the containment pad sump and from the first stage of the filter system and containerized for characterization and determination for proper disposal.

Section 3

3.0 Decontamination of Piping, Pumps, Valves, and Other Small Equipment

This section describes the procedures for the decontamination of piping, pumps, valves, and other small equipment as required under the Closure Plan.

Decontaminated items will be segregated based on the originating HWMU system. The rinsate batch in the rinse tank will be tested after all items from the same HWMU, or portions thereof, have been rinsed. A unique number identifying each batch of decontaminated items will be assigned, and this number will be the same as the rinsate sample number. Refer to Sampling Code System (Appendix C).

CHES will use the SOP Completion Checklist in Appendix B2 to document decontamination performance in accordance with this section.

3.1 Decontamination Location

Decontamination will be conducted in a prepared decontamination pad set up inside the existing West Bay process area. This area has a concrete floor with a blind sump surrounded by a 4 foot concrete retaining wall. The single ramp leading into the process area is elevated to contain standing liquids.

3.2 Initial Inspection

A 4-gas meter will be used for monitoring during disassembly. If the reading is > 10% LEL, the equipment will be vented using a blower or flushed out into a vacuum truck or directly to a holding tank until the reading falls below 10% LEL.

3.3 Decontamination Set Up

Piping requiring cold cutting during disassembly will be purged with nitrogen at 15 psig. A 4-gas monitor will be used at a downstream access point to monitor continuously during cutting to ensure that cutting is only done at < 10% LEL reading.

Decontamination work will be conducted to allow spent washwater to gravity flow towards the blind sump and to prevent overspray outside the process area retaining wall. Plastic sheet drop barriers or metal wash racks will be installed if necessary.

Additional set up of decontamination area facilities include placement of a rinse tank, washing equipment and supplies, water sources and wash water collection points. Ingress and egress will be limited to a single ramp on the west end of the process area. Emergency equipment and PPE decontamination stations will be set up.

Sump and collection points will be set up so that they are pumped out continuously into a temporary storage tank to prevent accumulation of spent washwater.

3.4 Collection of Solids and Sludge

Removable waste solids or sludge (if any) found during disassembly will be removed and transferred to a DOT container and characterized for proper disposal.

3.5 Flushing

If needed, flushing irregular internal surfaces will consist of filling chambers or voids with washwater or a sodium hydroxide solution to loosen and dislodge contamination located in small recesses or hidden interior spaces. Spent washwater will be dispensed into temporary tank storage.

3.6 Pre-Soak

Heavily stained, discolored, or corroded exterior or interior surfaces may need to be pre-soaked with washwater for 30 minutes to 1 hour.

3.7 Decontamination Process

Piping and small equipment will be removed up to the closest connection point to a tank or major process system. Draining of piping will be conducted at the lowest point drain or pumping out of the equipment piece. The lowest point could be the drain valve or cap located at each tank or the distribution manifold for each pipe line. Any free liquids will be allowed to drain into a container or tray.

Starting at the highest point in the overhead piping system, piping sections will be unbolted at flange connections with each disconnected end covered with 6 ml plastic and taped to prevent incidental internal material leakage or release.

Piping and equipment will be broken down into sections or components at flanges, unions, or disconnection points. Pumps and equipment having inaccessible interior spaces or voids will be broken down to a point that all interior chambers and voids can be directly washed and rinsed.

Piping and equipment will then be placed into the prepared decontamination area where plastic ends will be removed.

Each pipe section to be decontaminated is to be tilted on a temporary decon rack and both external and internal surfaces powerwashed. Equipment will be positioned or broken down to allow for direct pressure washing and rinsing.

Pressure washing will consist of washing interior and exterior surfaces using washwater on surfaces at or above 2500 psi.

Sump and collection points will be pumped out continuously to prevent accumulation of spent washwater. Spent washwater will be transferred to a temporary storage tank.

3.8 Rinsing

Each pipe section and equipment piece will then be submerged for at least 60 seconds in a rinse water tank filled with clean water. The volume of water in the submersion tank will be sufficient to completely submerge any single or collection of piping and equipment pieces.

Each piece will then be removed and set inside a steel drop box for final inspection and to await verification results. The spent rinsate from each batch will be sampled. A rinsate sample number will be assigned, and this number will be the same number as that identifying the batch of decontaminated items (refer to Appendix C for the Sampling Code System). The spent rinsate will be transferred to temporary storage tank for subsequent recycling for reuse.

3.9 Verification

Following the above steps, verification of successful decontamination will be conducted in accordance with Section 7 below.

Section 4

4.0 Decontamination of Concrete Structures

This section describes the procedures for the decontamination of concrete structures required under the Closure Plan.

CHES will use the SOP Completion Checklist in Appendix B3 to document decontamination performance in accordance with this section.

4.1 Initial Inspection

A visual inspection of concrete surfaces to include sumps, floors, walls and berms will be made to ascertain the safest and most effective decontamination approach.

Concrete surfaces, concrete epoxy coating, and sumps identified in Appendix A will be initially inspected for any cracks, gaps, peeling, bubbles, or other major structural defects prior to decontamination to determine potential subsurface soil sampling locations. Any cracks that are observed to extend through the entire thickness of the concrete slab will be sealed using non-toxic caulking prior to decontamination.

Gradients and slope will be considered when determining where to allow to flow for collection and if any temporary filling of cracks or holes (if present) need to be made prior to washing.

4.2 Decontamination Set Up

Metallic or non porous items such as grating, Unistrut® or Kendorf® fixtures, electrical conduit, or piping and that are found present in concrete containment pads and would interfere with the thorough cleaning of concrete will be disassembled and either placed into containers for decontamination as miscellaneous equipment or disposed as hazardous waste.

For concrete pads where curbing is not present, a temporary water proof berming material will be installed.

Additional set up of decontamination area facilities include installation of spray barriers or protective sheeting, placement of washing equipment and supplies, water sources and washwater collection points. Ingress and egress will be limited to a single ramp on the west end of the process area. Emergency equipment and PPE decontamination stations will be set up.

Containment sumps and collection points will be set up so that they will be pumped out continuously into a temporary storage tank to prevent accumulation of spent washwater.

4.3 Collection of Solids

Removable debris and loose dirt found will be swept, removed and transferred to a DOT container and characterized for proper disposal.

4.4 Pre-Soak

Heavily stained or discolored concrete surfaces may be pre-soaked for 1 to 2 hours by applying washwater or sodium hydroxide solution directly onto impacted surfaces before pressure washing. Should staining or contamination persist after pressure washing then impacted concrete sections will be subject to the procedures in Section 5.

4.5 Decontamination Process

Decontamination will consist of high pressure washwater (at or above 2500 psi) applied evenly on surfaces starting from the highest contours. Blank or blind sumps will be the last areas to be powerwashed.

Sumps and collection points will be continuously pumped out. Spent washwater will be transferred into temporary storage tank.

If, after decontamination, heavily stained or discolored concrete surfaces are observed, they may be presoaked (see 4.4 above) or decontaminated again in accordance with this subsection.

4.6 Rinsing

Following washing and removal of spent washwater, a single rinse with clean water will be applied evenly on surfaces starting from the highest contours working down to sumps

Spent rinsate will be pumped from sumps and transferred to a temporary storage tank.

4.7 Verification

Following the above steps, verification of successful decontamination will be conducted in accordance with Section 8 below.

Section 5

5.0 Decontamination of Concrete Structures – Scarification or Removal

This section describes the methods for scarifying or removing concrete surfaces that failed the decontamination process under Section 4.

Appendix A lists all SOPs that apply to the decontamination and verification of concrete containment or sump systems affected by this SOP.

CHES will use the SOP Completion Checklist in Appendix B4 to document decontamination performance in accordance with this section.

5.1 Initial Inspection

A visual inspection of concrete pad and/or berm surfaces and outer edges will be made to ascertain the safest and most effective cutting and/or removal approach. A water-based spray paint or marking chalk may be used to delineate the impacted area needing work. Gradients and slope will be considered when determining where to allow water to flow and collect. It will be determined if any temporary filling of cracks or holes (if present) is required prior to work.

For concrete pads where curbing is not present, a temporary water proof berming material will be installed to prevent release of scarification or cutting fluids.

5.2 Scarification Set Up

Any metallic or non porous items such as grating, Unistrut® or Kendorf® fixtures, electrical conduct, or piping and that impede the scarification or flow of cutting solution or would require disassembly will be demolished, removed and placed into containers for decontamination as miscellaneous equipment or disposed as hazardous waste.

Work set up considerations will include the placement of control zone locations and temporary berming. Spray barriers or protective sheeting will be installed if necessary.

Additional set up of decontamination area includes placement of wet cutting equipment and supplies, and water sources and collection points. Ingress and egress will be specified. Emergency equipment and PPE decontamination stations will be set up. Containment and transfer of spent cutting solution will be set up.

5.3 Collection of Solids

If not already completed, removable debris and loose dirt on the concrete surface will be swept, removed and transferred to a DOT container and characterized for proper disposal.

5.4 Scarification Process

CHES will first wet down the concrete surface to prevent dust generation then use concrete scarification equipment to remove approximately ¼ inch of concrete face. This

work is to be conducted using a continuous feed of wetting water to reduce wear of the scarification blade and prevent generation of concrete dust.

Scarification water will be collected during water application using a portable vacuum unit. The solution will be allowed to separate and the supernatant will then be decanted. The liquid phase will be added to the spent washwater temporary storage tank.

Collected concrete sediment will be solidified and disposed as a hazardous waste. Following scarification, rinse water will be used and later discarded into a temporary storage tank.

5.5 Preliminary Evaluation

After an area is scarified and allowed to dry, it will be visually examined. If staining or contamination is still evident, the Project Superintendent will decide whether to further scarify (section 5.4), attempt wet decontamination (section 4.4 or 4.5), or proceed to section 5.6. This decision may be made in consultation with the CHES Project Manager, Romic representative or independent Professional Engineer certifying closure.

If, upon visual examination, the Project Superintendent determines that evidence of staining or contamination is not present, proceed with section 5.7 below.

5.6 Concrete Cutting

Cutting will consist of delineating the impacted area using water based spray paint or marking chalk. CHES will first wet down the surface area to be cut then use concrete cutting equipment to remove approximately concrete to depth on a single or two step pass depending on the depth of concrete. For sumps that restrict a wheel cutter, a core auger will be used to core out impacted sections.

This work is to be conducted using a continuous feed of wetting water to reduce wear of the cutting blade or coring bit and prevent generation of concrete dust.

Cutting or coring water will be vacuumed up during water application and collected into a portable vacuum unit where the solution is be allowed to separate followed by decanting of supernatant. The liquid phase will be added to the spent decontamination wash water generated from project decontamination processing.

Once cutting has been completed the section of loose concrete will be removed, containerized and disposed as hazardous waste. Any wet soil underneath will be hand shoveled out, containerized, and characterized for disposal. Plastic sheeting will be placed over the open section of concrete pending results of soil testing that will determine the need for any further remediation. The plastic sheeting will be weighted down with 2x4s or in a similar fashion. Large areas will require additional covering materials, such as plywood, to ensure worker safety.

5.7 Verification

Following the above steps, verification of successful decontamination will be conducted in accordance with Section 8 below.

Section 6

6.0 Verification for Tanks, Vessels, and Major Process Equipment

This section describes the verification of decontamination for tanks, vessels, and major process equipment as required under the Closure Plan.

CHES will use the Clean Debris Surface Standard Verification form (see Appendix B5) for each tank, vessel, or process equipment subject to this section.

6.1 Exterior Surface Verification Procedures

Decontaminated exteriors will be inspected as follows;

a. Three (3) separate one square foot exterior surface areas will be visually inspected and recorded on the "Clean Debris Surface Inspection and Verification Check List".

b. The first area must be within one foot of a tank drain or discharge valve. The second area must be within one foot of the influent intake nozzle. The third surface must be within one foot of the bottom lip of the tank. In the case of elevated tanks with convex bottoms, the inspection area will be as near as possible to bottom dead center.

c. Each surface, "when viewed without magnification, must be free of all visible contaminated soil and hazardous waste except that residual staining from soil and waste consisting of light shadows, slight streaks, or minor discolorations, and soil and waste in cracks, crevices, and pits may be present provided that such staining and waste and soil in cracks, crevices, and pits shall be limited to no more than 5% of each square inch of surface area."

d. Remaining exterior surfaces will be inspected thoroughly to verify consistency with the three areas.

6.1.1 Pass

Items that pass the verification performance standards will be marked as "Non Hazardous" with a copy of the verification checklist affixed to the exterior of each item. Items having passed verification will be left in place or relocated outside the HWMU based on the need to decontaminate underlying concrete surfaces. The Project Superintendent will be responsible for making any "Pass" determinations.

6.1.2 Fail

Items failing the verification performance standards will be subject to repeated decontamination efforts or disposal as hazardous waste. The Project Superintendent will be responsible for deciding whether to implement further decontamination attempts.

These pass-fail decisions, as well as decisions whether to repeat decontamination attempts, may be made in consultation with the Project Manager, Romic representative, or the independent Professional Engineer certifying closure.

6.2 Interior Surface Verification Procedures

Inspection of any internal tank or process equipment surface will require confined space entry and therefore will require monitoring and entry procedures as described under the CHES confined space guidelines made part of the CHES health and safety plan.

The “clean debris surface” standard in 40 CFR 268.45 will be applied for the verification of the interior of each tank and process equipment.

Decontaminated interiors will be inspected as follows;

a. All close surface inspections must be conducted using a LCD or halogen light having a minimum of 750 lumens.

b. Three (3) separate 1 square foot interior surface areas will be visually inspected and recorded on the “Clean Debris Surface Inspection and Verification Check List”.

c. The first area must be within one foot of a tank drain or discharge transition. The second area must be within one foot of the influent intake nozzle transition. The third surface must be approximately one foot from the inside tank edge at any location on the tank bottom. In the case of elevated tanks with rounded dish bottoms, the inspection area will be a bottom dead center.

d. Each surface, “when viewed without magnification, must be free of all visible contaminated soil and hazardous waste except that residual staining from soil and waste consisting of light shadows, slight streaks, or minor discolorations, and soil and waste in cracks, crevices, and pits may be present provided that such staining and waste and soil in cracks, crevices, and pits shall be limited to no more than 5% of each square inch of surface area.”

e. Remaining interior surfaces will be inspected thoroughly to verify consistency with the three areas.

   Note: Care must be taken while inspecting the interior of tank roofs. Tanks 105 and 112 in particular will have their roofs inspected only after the tanks are removed from their current positions, placed on their sides on the ground, and stabilized.

6.2.1 Pass

Items that pass the verification performance standards will be marked as “Non Hazardous” with a copy of the verification checklist affixed to the exterior of each item. Items having passed verification will be left in place or relocated outside the HWMU based on the need to decontaminate underlying concrete surfaces. The Project Superintendent will be responsible for making any “Pass” determinations.

6.2.2 Fail

Items failing the verification performance standards will be subject to repeated decontamination efforts or disposal as hazardous waste. The Project Superintendent will be responsible for deciding whether to implement further decontamination attempts.

These pass-fail decisions, as well as decisions whether to repeat decontamination attempts, may be made in consultation with the Project Manager, Romic representative, or the independent Professional Engineer certifying closure.

Section 7

7.0 Verification for Piping, Pumps, Valves, and Small Equipment

This section describes the verification of decontamination for piping, pumps, valves, and small equipment as required under the Closure Plan.

CHES will use the Verification Form for Piping, Pumps, Valves, and Small Equipment (see Appendix B6) to document results and decision-making pursuant to this SOP.

7.1 Verification Process

The following verification process is to be conducted after the decontamination and rinsing of piping, pumps, valves and small equipment.

7.1.1 Sample Collection

Beginning rinsate samples are to be taken before any equipment is rinsed. The samples will be prepared in the same manner as final rinsate samples, described below. The beginning rinsate samples must be kept on ice until they are sent to the analytical laboratory.

Rinsate samples will be collected from the rinse tank used for final rinsing of items. Samples will consist of three 40-ml glass VOA vials with zero head space, two 1-liter glass bottles, and one 1-liter HDPE bottle. The sample in the one-liter HDPE bottle will require preservation with nitric acid to a pH less than 2. The samples will be sealed, labeled, and placed on ice in a cooler for shipment to the designated laboratory.

7.1.2 Sample Numbering

Rinsate samples will be numbered in accordance with Appendix C.

7.1.3 Sampling Control

The CHES quality assurance manager will oversee all sampling activities in accordance with the requirements of the Sampling and Analysis Plan.

A Chain of Custody form will be filled out indicating the sample number, time of collection, and testing analysis required.

7.1.4 Testing Parameters

Testing Parameters indicated on the Chain of Custody for rinsate samples will include VOC (EPA method 8260B), SVOC (EPA method 8270D), and metals (EPA 6010C and 7471B) as described in Closure Plan Table S-2.

For equipment from the Tank Farm D HWMU, measure the pH of the rinsate solution and record the measurement on the Verification Form. If a pH meter is used to measure the pH, perform a calibration at least once per day and record results on the Verification Form.

7.1.5 Evaluation of Analytical Results

The Project Quality Assurance Manager (Mr. Ashok Jain) will evaluate the laboratory results from rinsate samples to determine whether there are any data quality issues that render the results unusable. If data quality is satisfactory, the Project Superintendent will evaluate the results as set forth below.

7.1.5.1 Pass

Piping, pumps, and equipment will be considered non-hazardous should the final rinsate sample show no net increase in contaminants of concern (see Table 5 in the Appendix to the Sampling and Analysis Plan, Attachment B to the Closure Plan) from the beginning rinsate sample. The Project Superintendent will be responsible for making any "Pass" determinations. The segregated drop box will be marked as "Non-Hazardous" with a copy of the Verification Form affixed to the exterior.

7.1.5.2 Fail

Items failing the rinsate verification performance standard above will be subject to repeated decontamination efforts or disposal as hazardous waste. The Project Superintendent will be responsible for deciding whether to implement further decontamination attempts.

These pass-fail decisions, as well as decisions whether to repeat decontamination attempts, may be made in consultation with the Project Manager, Romic representative, or the independent Professional Engineer certifying closure.

Section 8

8.0 Verification for Concrete

This section describes the verification of decontamination of concrete surfaces to be left in place, as required in the Closure Plan.

CHES will use the Clean Debris Surface Standard Verification form (see Appendix B7) to document the verification of decontamination of concrete surfaces as described in section 8.1.

8.1 Verification Process

The "clean debris surface" standard in 40 CFR 268.45 will be applied for the verification of concrete decontamination.

Decontaminated secondary containment areas will be inspected as follows:

a. A minimum of three 1-square foot surface areas from each containment area will be visually inspected and recorded on the "Clean Debris Surface Inspection form.

b. One of the areas must include the bottom of the blind sump.

c. A second area must be located underneath the previous location of one of the tanks, if verifying a tank farm.

d. A third area must be on an inside wall within one (1) foot from the floor of the pad.

e. For large concrete surfaces with trenches or contoured gradients, a fourth 1-square foot surface area must be examined that represents an area that would have been in the likely path of flow in case of a release. Each one-square foot area will represent no more than 500 square feet. Additional one-square foot verification areas will be selected based on visual evidence of residual discoloration or staining.

f. A detailed visual inspection of remaining concrete surfaces is to be conducted for consistency with the above examined areas.

8.1.1 Pass

Concrete surfaces passing decontamination performance standards will be identified as such and cordoned off with green tape to indicate no further hazardous waste operations are to be conducted in that area. The Project Superintendent will be responsible for making any "Pass" determinations.

8.1.2 Fail

If any concrete surface is found to exceed the criteria of the "Clean Debris Surface" standard then that area may be re-cleaned, scarified, or removed using the procedures in Sections 4 or Section 5, or removed, characterized, and properly disposed. The Project Superintendent will be responsible for making this determination.

These pass-fail decisions, as well as decisions whether to repeat decontamination attempts, may be made in consultation with the Project

Manager, Romic representative, or the independent Professional Engineer certifying closure.

SOP Appendix A
Inventory of Units and Equipment

Equipment ID	Location	Maximum Capacity	Permit Capacity/Dimensions	Material of Construction	Applicable SOPs (NOTE: #5 is a contingency SOP only)	Applicable SOPs for Associated Piping, Pumps, Valves and Other Small Equipment
101	Tank Farm A & B See Figure B-7	5,850 gal.	5,800 gal.	Carbon steel	2, 6	3, 7
102		5,850 gal.	5,800 gal.	Carbon steel	2, 6	3, 7
103		6,500 gal.	5,800 gal.	Carbon steel	2, 6	3, 7
104		5,850 gal.	5,800 gal.	Carbon steel	2, 6	3, 7
105		5,850 gal.	5,900 gal.	Carbon steel	2, 6	3, 7
112		15,300 gal.	15,000 gal.	Stainless steel	2, 6	3, 7
Secondary Containment			47.92' x 38.67' x 1.9'	Coated concrete	4, 5, 8	NA
Sump			17" x 17" x 10.5"	Coated concrete	4, 5, 8	NA
Sump			21" x 21" x 12"	Coated concrete	4, 5, 8	NA
Pump			1	Steel/Aluminum/Plastic	3, 7	3, 7
121	Tank Farm C See Figure B-8	6,700 gal.	6,500 gal.	Carbon steel	2, 6	3, 7
122		6,700 gal.	6,500 gal.	Carbon steel	2, 6	3, 7
123		6,700 gal.	6,500 gal.	Carbon steel	2, 6	3, 7
124		9,400 gal.	9,000 gal.	Carbon steel	2, 6	3, 7
113		15,150 gal.	15,000 gal.	Stainless steel	2, 6	3, 7
Secondary Containment			45.25' x 25.83' x 2.5'	Coated concrete	4, 5, 8	NA
Sump			21" x 21" x 12"	Coated concrete	4, 5, 8	NA
Pump			1	Steel/Aluminum/Plastic	3, 7	3, 7
132	Tank Farm D See Figure B-8	3,500 gal.	3,256 gal.	HDPE	2, 6	3, 7
135[1]		5,000 gal.	4,106 gal.	HDPE	2, 6	3, 7
136		5,000 gal.	4,106 gal.	HDPE	2, 6	3, 7
Secondary Containment			39.67' x 25.83' x 2.5'	Coated concrete	4, 5, 8	NA
Sump			21" x 21" x 12"	Coated concrete	4, 5, 8	NA
Pump			1	Steel/Aluminum/Plastic	3, 7	3, 7

[1] Closed; closure certification previously submitted to U.S. EPA.

SOP Appendix A
Inventory of Units and Equipment (cont.)

Equipment ID	Location	Maximum Capacity	Permit Capacity/Dimensions	Material of Construction	Applicable SOPs (NOTE: #5 is a contingency SOP only)	Applicable SOPs for Associated Piping, Pumps, Valves and Other Small Equipment
Vacuum Pot	Vac Pot/Thin Film Area See Figure B-7		1,700 gal.	Stainless steel	2, 6	3, 7
S-1			600 gal.	Stainless steel	2, 6	3, 7
S-2			600 gal.	Stainless steel	2, 6	3, 7
Thin Film Evaporator			24' diam. x 6'	Stainless steel	2, 6	3, 7
Receiver			225 gal.	Stainless steel	2, 6	3, 7
Flush Tank			225 gal.	Stainless steel	2, 6	3, 7
Secondary Containment			39.67' x 29' x 1'	Coated concrete	4, 5, 8	NA
Sump			1. X 1.33' x 0.67'	Coated concrete	4, 5, 8	NA
Distillation column	Distillation Column Area See Figure B-9		30" diam. x	Stainless steel	2, 6	3, 7
Reboiler			2,900 gal.	Carbon steel	2, 6	3, 7
Separator			85 gal.	Carbon steel	2, 6	3, 7
Secondary Containment			38.67' x 22' x 0.9'	Coated concrete	4, 5, 8	NA
Sump			5.33' x 4' x 0.75'	Coated concrete	4, 5, 8	NA
Pumps			6	Steel/Aluminum/Plastic	3, 7	3, 7
Pumps			1	Steel/Aluminum/Plastic	3, 7	3, 7
S-1	VOC System See Figure B-4		318 gal.	Carbon steel	2, 6	3, 7
S-2			80 gal.	Carbon steel	2, 6	3, 7
S-3			8 gal.	Carbon steel	3, 7	3, 7
Secondary Containment			22' x 10' x 0.42'	Coated concrete	4, 5, 8	NA
Sump			1' x 1' x 1'	Coated concrete	4, 5, 8	NA
Pumps			4	Steel/Aluminum/Plastic	3, 7	3, 7
Secondary Containment	Drum Storage Building #1 See Figure B-10		11901 sq. ft.	Coated concrete	4, 5, 8	NA
Sump			39.5' x 1.33' x 0.5'	Coated concrete	4, 5, 8	NA
Canopy Area			5,440 sq. ft.	Coated concrete	4, 5, 8	NA
Sump			21" x 21" x 12"	Coated concrete	4, 5, 8	NA

SOP Appendix A
Inventory of Units and Equipment (cont.)

Equipment ID	Location	Maximum Capacity	Permit Capacity/Dimensions	Material of Construction	Applicable SOPs (NOTE: #5 is a contingency SOP only)	Applicable SOPs for Associated Piping, Pumps, Valves and Other Small Equipment
Secondary Containment	Rail Loading Area[2] See Figure B-11		7900 sq. ft.	Carbon steel	4, 5, 8	NA
Sump			18" x 18" x 12"	Coated concrete	4, 5, 8	NA
Aerosol Can Depressurization/ Crusher Unit	West Bay Processing Area See Figure B-8		n/a	Carbon steel	3, 7	NA
Secondary Containment			45.25' x 29' x 2.5'	Coated concrete	4, 5, 8	NA
Sump			18" x 18" x 12"	Coated concrete	4, 5, 8	NA
Secondary Containment	East Bay Processing Area[2] See Figure B-8		39.67' x 29' x 2.5'	Coated concrete	4, 5, 8	NA
Sump			18" x 18" x 12"	Coated concrete	4, 5, 8	NA

HDPE = High density polyethylene

NA = Not Applicable

[2] 90-day generator area

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APPENDIX B1

SOP COMPLETION CHECKLIST,

DECONTAMINATION OF TANKS, VESSELS, AND MAJOR PROCESS EQUIPMENT

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CHECKLIST
DECONTAMINATION OF TANKS, VESSELS, AND MAJOR PROCESS EQUIPMENT

EQUIPMENT ID: _____ DATE: _____

HWMU/SWMU ID: _____

SOP SECT. #	SOP STEP	COMPLETED (Y – N – N/A)
2.1	If decontamination was not conducted "in-place", equipment was inspected, drained of any free liquids, and moved to a bermed containment area before decontamination.	
2.2	Equipment was inspected for vapors and checked for confined space requirements. Gas meter reading: _____	
2.2	If reading was >10% LEL, equipment was vented and purged, and an atomized water spray was used to knock down vapors. Continuous monitoring was conducted at the outlet port to insure <10% LEL outside the tank at all times.	
2.2	All ports, manways, hatches, or inspection points were opened and allowed to air out.	
2.2	Equipment was inspected and found to be free of visible contamination and no presence of organic constituents. (Skip decontamination and rinsing procedures and go to verification procedures on Section 2.9)	
2.2	Containment pads provided adequate containment of waste from washing and rinsing.	
2.3	Scaffolding was erected for equipment systems higher than 6 feet without fixed elevated work surfaces.	
2.3	Spray barriers or protective sheeting were installed (if there is a possibility of overspray beyond the containment area).	
2.3	Washing equipment and supplies, water sources, and washwater collection points were available.	
2.3	Ingress and egress were limited to a single retaining wall, stair well or ladder.	
2.3	Emergency equipment and PPE decontamination stations were in place.	
2.3	Tank, vessel or process equipment drain lines/valves were connected to a temporary storage tank to hold the spent washwater.	
2.4	Accumulated debris or sludge found in the bottom of a tank or process vessel was collected and placed into DOT containers or totes for waste determination and proper disposal.	
2.5	If needed, flushing of irregular internal surfaces was performed with washwater or a sodium hydroxide solution. Solution used: _____	
2.6	Pre-soaking was performed with washwater.	
2.7	Exterior surfaces were pressure washed.	
2.7	Interior surfaces were pressure washed. Irregular internal chambers and voids are pressure were pressure washed using a mole or wide angle rotor washing attachment.	
2.8	Exterior surfaces were rinsed twice.	
2.8	Interior surfaces were rinsed twice.	
2.8	Spent rinseate was transferred to a temporary storage tank.	
2.9	Verification of successful decontamination was conducted in accordance with Section 6 (see Form Appendix B1).	
2.10	Should general pressure washing of tank surfaces require more vigorous decontamination, the following course of action was taken using hydroblasting of selected surfaces to remove rust, scale, or stubborn build up of contamination	
2.10	Spent hydroblasting rinse water was allowed to drain into secondary containment and was collected immediately and continuously, and pumped to the temporary holding tank located in Tank Farm D.	

CHECKLIST
DECONTAMINATION OF TANKS, VESSELS, AND MAJOR PROCESS EQUIPMENT
(Continued)

	2.10	Plastic or cloth barriers were erected to prevent overspray or ejection of particles beyond the control zone, if necessary.	
	2.10	Conducted hydroblasting in accordance with the safety and operational policies found in the Clean Harbors hydroblasting safety and procedure guidelines.	
	2.10	All manways on tank opened prior to commencement of high pressure spraying.	
	2.10	Tank surfaces were checked visually every few minutes to monitor progress and determine results.	
	2.10	Hydroblasted surfaces were allowed to dry.	
	2.10	Verification of successful decontamination was conducted in accordance with Section 6 (see Form Appendix B1).	
	2.10	Any remaining loose scale or material in pitted surfaces was/were manually removed using wire brushes or hand grinders.	
	2.10	Solids were collected from the containment pad sump and from the first stage of the filter system and containerized for characterization and determination for proper disposal.	

INSTRUCTIONS:
Equipment IDs are found in SOP Appendix A (Inventory of Units and Equipment).
Note any comments on the back of this form and reference the SOP Section #.

CHECKLIST
DECONTAMINATION OF TANKS, VESSELS, AND MAJOR PROCESS EQUIPMENT
(Continued)

EQUIPMENT ID: _____ DATE: _____

HWMU/SWMU ID: _____

SOP SECT. #	COMMENTS

I have completed this form based on my actions or observations, and attest that the information noted is true and accurate.	Based on my personal observations and/or inquiry of responsible individuals, I attest that this form was properly and accurately completed.
Lead Technician Signature	Project Superintendent Signature
Lead Technician Printed Name	Project Superintendent Printed Name
Date	Date

APPENDIX B2
SOP COMPLETION CHECKLIST,

DECONTAMINATION OF PIPING, PUMPS, VALVES, AND OTHER SMALL EQUIPMENT

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CHECKLIST
DECONTAMINATION OF PIPING, PUMPS, VALVES, AND OTHER SMALL EQUIPMENT

EQUIPMENT ID: _____ DATE: _____

HWMU/SWMU ID: _____

SOP SECT. #	SOP STEP	COMPLETED (Y – N – N/A)
3.1	Decontamination pad was set up inside the existing West Bay process area.	
3.2	Equipment was monitored for vapors during disassembly. Gas meter reading: _____	
3.2	If reading was greater than 10% LEL, equipment was vented or flushed out into a vacuum truck or directly to a holding tank until LEL falls below 10% LEL.	
3.3	Piping requiring cold cutting was purged with nitrogen at 15 psig. A 4-gas monitor was used at a downstream access point and monitored continuously during cutting to ensure less than 10% LEL.	
3.3	Plastic sheet drop barriers or metal wash racks were installed (if necessary).	
3.3	Rinse tank, washing equipment and supplies, water source and washwater collection points were available.	
3.3	Ingress/egress was limited to a single ramp on the west end of the process area.	
3.3	Emergency equipment and PPE decontamination stations were in place.	
3.4	Removable waste solids or sludge (if any) found during disassembly was removed and transferred to a DOT container and characterized for proper disposal.	
3.5	If needed, flushing irregular internal surfaces was performed with washwater or a sodium hydroxide solution. Solution used: _____	
3.6	Pre-soaking was performed with washwater.	
3.7	Draining of piping was conducted at the lowest point drain or pumping out of the equipment piece. Any free liquids were allowed to drain into a container or tray.	
3.7	Starting at the highest point in the overhead piping system, piping sections were unbolted at flange connections with each disconnected end covered with 6 ml plastic and taped to prevent incidental internal material leakage or release.	
3.7	Piping and equipment were broken down into sections or components at flanges, unions, or disconnection points.	
3.7	Pumps and equipment having inaccessible interior spaces or voids were broken down such that all interior chambers and voids could be directly washed and rinsed.	
3.7	Piping and equipment were placed into the prepared decontamination area where plastic ends will be removed.	
3.7	Each pipe section was tilted on a temporary decon rack and external and internal surfaces were power washed. Equipment was positioned or broken down to allow for direct power washing and rinsing.	
3.7	The containment sump was pumped out continuously to prevent accumulation of spent washwater.	
3.7	Spent washwater was transferred to temporary tank storage.	
3.8	Each pipe section and equipment piece was submerged for at least 60 seconds in a rinse water tank filled with sufficient clean water to completely submerge all pieces.	
3.8	A rinsate sample number was taken, and a sample number assigned (Appendix C). The same number was assigned to the batch of decontaminated items.	
3.8	Spent rinseate was collected in a temporary storage tank.	
3.9	Verification of successful decontamination was conducted in accordance with Section 7.	

INSTRUCTIONS:
Equipment IDs and HWMUs are found in Table SOP Appendix A (Inventory of Units and Equipment).
Note any comments on the back of this form and reference the SOP Section #.

CHECKLIST
DECONTAMINATION OF PIPING, PUMPS, VALVES, AND OTHER SMALL EQUIPMENT

EQUIPMENT ID: _____ DATE: _____
HWMU/SWMU ID: _____

SOP SECT. #	COMMENTS

I have completed this form based on my actions or observations, and attest that the information noted is true and accurate.	Based on my personal observations and/or inquiry of responsible individuals, I attest that this form was properly and accurately completed.
Lead Technician Signature	Project Superintendent Signature
Lead Technician Printed Name	Project Superintendent Printed Name
Date	Date

APPENDIX B3
SOP COMPLETION CHECKLIST,

DECONTAMINATION OF CONCRETE STRUCTURES

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CHECKLIST
DECONTAMINATION OF CONCRETE STRUCTURES

HWMU/SWMU: _____ DATE: _____

SOP SECT. #	SOP STEP	COMPLETED (Y – N – N/A)
4.1	A visual inspection of concrete surfaces to include sumps, floors, walls and berms was made to ascertain the safest and most effective decontamination approach.	
4.1	Concrete surfaces and epoxy coatings were inspected for cracks, gaps, peeling, bubbles, or other major structural defects prior to decontamination to determine potential subsurface soil sampling locations.	
4.1	Any cracks that were observed to extend through the entire thickness of the concrete slab were sealed using non-toxic caulking.	
4.1	Gradients and slope were considered when determining where to allow washwater to flow for collection.	
4.2	Metallic or non porous items that would interfere with decontamination were disassembled. They were either placed into containers for decontamination as miscellaneous equipment or disposed as hazardous waste.	
4.2	For concrete pads where curbing is not present, a temporary water proof berming material was installed.	
4.2	Spray barriers or protective sheeting were installed (if there is a possibility of overspray beyond the containment area).	
4.2	Washing equipment and supplies, water sources and washwater collection points were available.	
4.2	Ingress and egress were limited to a single retaining wall stair well or ladder.	
4.2	Emergency equipment and PPE decontamination stations were in place.	
4.2	Transfer and containment of spent washwater were in place.	
4.3	All debris and loose dirt were swept up and placed into containers for disposal as hazardous waste.	
4.4	If needed, heavily stained or discolored concrete surfaces were pre-soaked with washwater or a sodium hydroxide solution. (Should staining or contamination persist after pressure washing then impacted concrete sections will be subject to the procedures in Section 5). Solution used: _____	
4.5	Surfaces were pressure washed. Decontamination work was performed evenly on surfaces starting from the highest contours. Blank or blind sumps were power washed.	
4.5	Sumps and collection points were continuously pumped. Spent washwater was transferred to temporary storage tank.	
4.6	A single rinse with clean water was applied evenly on surfaces starting from the highest contours working down to sumps.	
4.6	Spent rinseate was collected into a temporary storage tank.	
4.7	Verification of successful decontamination was conducted in accordance with Section 8.	

HWMUs (Hazardous Waste Management Unit) are found in SOP Appendix A (Inventory of Units and Equipment).
Note any comments on the back of this form and reference the SOP Section #.

CHECKLIST
DECONTAMINATION OF CONCRETE STRUCTURES
(Reverse)

HWMU/SWMU: _____ DATE: _____

SOP SECT. #	COMMENTS

I have completed this form based on my actions or observations, and attest that the information noted is true and accurate.	Based on my personal observations and/or inquiry of responsible individuals, I attest that this form was properly and accurately completed.
Lead Technician Signature	Project Superintendent Signature
Lead Technician Printed Name	Project Superintendent Printed Name
Date	Date

APPENDIX B4
SOP COMPLETION CHECKLIST,

DECONTAMINATION OF CONCRETE STRUCTURES
SCARIFICATION OR REMOVAL

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CHECKLIST
DECONTAMINATION OF CONCRETE – SCARIFICATION OR REMOVAL

HWMU: _____ DATE: _____

SOP SECT. #	SOP STEP	COMPLETED (Y – N – N/A)
5.1	A visual inspection of concrete pad and/or berm surfaces and outer edges was made to ascertain the safest and most effective cutting and/or removal approach.	
5.1	Gradients and slope were considered when determining where to allow water to flow and collect.	
5.1	Cracks or holes (if present and necessary) were temporarily filled prior to work.	
5.1	For concrete pads where curbing was not present, a temporary water proof berming material was installed to prevent release of scarification or cutting fluids	
5.2	Metallic or non porous items that would impede scarification or flow of cutting solution or would require disassembly were demolished, removed, and placed into containers for decontamination as miscellaneous equipment or disposal as hazardous waste.	
5.2	Control zone locations were in place.	
5.2	Spray barriers or protective sheeting were in place.	
5.2	Wet cutting equipment and supplies, water sources and washwater collection points were available.	
5.2	Ingress and egress points were in place.	
5.2	Emergency equipment and PPE decontamination stations were in place.	
5.2	Containment and transfer of spent cutting solution were in place	
5.3	All debris and loose dirt were swept up and placed into containers for disposal as hazardous waste.	
5.4	Proper scarification procedures (first wet down the concrete surface to prevent dust generation then use a concrete scarification equipment to remove approximately ¼ inch of concrete face) were followed.	
5.4	Scarification water was collected using a portable vacuum unit. The solution was allowed to separate and the supernatant was later decanted. The liquid phase was added to the spent washwater temporary storage tank.	
5.4	Collected concrete sediment was solidified and disposed as a hazardous waste.	
5.4	Spent washwater was discarded into a temporary storage tank.	
5.5	Cutting procedures (first wet down the surface area to be cut, then use concrete cutting equipment to remove approximately concrete to depth on a single or two step pass depending on the depth of concrete. For sumps that restrict a wheel cutter, a core auger will be used to core out impacted sections) were followed.	
5.5	Cutting or coring water was collected into a portable vacuum unit where the solution was allowed to separate followed by decanting of supernatant. The liquid phase was added to the spent washwater temporary storage tank.	
5.5	Sections of loose concrete were removed, containerized and disposed as hazardous waste.	
5.6	Verification of successful decontamination was conducted in accordance with Section 8.	

HWMUs (Hazardous Waste Management Unit) are found in SOP Appendix A (Inventory of Units and Equipment).
Note any comments on the back of the form and reference the SOP Section #.

CHECKLIST
DECONTAMINATION OF CONCRETE – SCARIFICATION OR REMOVAL
(Reverse)

HWMU: _____ DATE: _____

SOP SECT. #	COMMENTS

I have completed this form based on my actions or observations, and attest that the information noted is true and accurate.	Based on my personal observations and/or inquiry of responsible individuals, I attest that this form was properly and accurately completed.
Lead Technician Signature	Project Superintendent Signature
Lead Technician Printed Name	Project Superintendent Printed Name
Date	Date

APPENDIX B5

VERIFICATION FORM FOR
TANKS, VESSELS, AND MAJOR PROCESS EQUIPMENT

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VERIFICATION FORM FOR TANKS, VESSELS, AND MAJOR PROCESS EQUIPMENT
CLEAN DEBRIS SURFACE STANDARD

Equipment Information			
HWMU/SWMU:		Equipment ID:	
Tank	❑ Carbon Steel ❑ Stainless Steel ❑ HDPE ❑ Other: _____		
Process Equipment	❑ Carbon Steel ❑ Stainless Steel ❑ HDPE ❑ Other: _____		

TANK EXTERIOR			
Exterior Location #1 (identify):			
Observations:			
Surface contamination: ❑ Yes ❑ No	Staining: ❑ Yes ❑ No	Residues in cracks, pits: ❑ Yes ❑ No	
Exterior Location #2 (identify):			
Observations:			
Surface contamination: ❑ Yes ❑ No	Staining: ❑ Yes ❑ No	Residues in cracks, pits: ❑ Yes ❑ No	
Exterior Location #3 (identify):			
Observations:			
Surface contamination: ❑ Yes ❑ No	Staining: ❑ Yes ❑ No	Residues in cracks, pits: ❑ Yes ❑ No	
Remaining Exterior Surfaces			
Observations:			
Surface contamination: ❑ Yes ❑ No	Staining: ❑ Yes ❑ No	Residues in cracks, pits: ❑ Yes ❑ No	

TANK INTERIOR			
Interior Location #1 (identify):			
Observations:			
Surface contamination: ❑ Yes ❑ No	Staining: ❑ Yes ❑ No	Residues in cracks, pits: ❑ Yes ❑ No	
Interior Location #2 (identify):			
Observations:			
Surface contamination: ❑ Yes ❑ No	Staining: ❑ Yes ❑ No	Residues in cracks, pits: ❑ Yes ❑ No	
Interior Location #3 (identify):			
Observations:			
Surface contamination: ❑ Yes ❑ No	Staining: ❑ Yes ❑ No	Residues in cracks, pits: ❑ Yes ❑ No	
Remaining Interior Surfaces			
Observations:			
Surface contamination: ❑ Yes ❑ No	Staining: ❑ Yes ❑ No	Residues in cracks, pits: ❑ Yes ❑ No	

VERIFICATION FORM FOR TANKS, VESSELS, AND MAJOR PROCESS EQUIPMENT
CLEAN DEBRIS SURFACE STANDARD

Equipment Information			
HWMU/SWMU:		Equipment ID:	

Verification Comments

NOTES
See Romic Southwest Closure SOP Section 6 for guidance. Attach tank sketch if appropriate.

Verification Results	
❑ Pass ❑ Fail	
"Pass" indicates that each surface has passed visual inspection; that is, each surface, when viewed without magnification, is free of all visible contaminated soil and hazardous waste except that residual staining from soil and waste consisting of light shadows, slight streaks, or minor discolorations, and soil and waste in cracks, crevices, and pits may be present provided that such staining and waste and soil in cracks, crevices, and pits shall be limited to no more than 5% of each square inch of surface area. [ref 40 CFR 268.45 Table 1]	
If equipment failed, Project Superintendent to decide whether to repeat decontamination	
Repeat Decontamination? ❑ Yes ❑ No	Dispose as hazardous waste? ❑ Yes ❑ No
Project Superintendent Comments:	

Project Superintendent Certification	***Project Manager Certification***
I certify that this document and all attachments were prepared under my direction or supervision. Based on my inquiry of those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.	I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who manage the system and/or are directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete.
Project Superintendent Printed Name	Project Manager Printed Name
Project Superintendent Signature	Project Manager Signature
Date	Date

APPENDIX B6

VERIFICATION FORM FOR
PIPING, VALVES, AND SMALL EQUIPMENT

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VERIFICATION FORM FOR PIPING, PUMPS, VALVES, AND SMALL EQUIPMENT
CLEAN RINSATE STANDARD

Equipment Information				
HWMU/SWMU:				
Piping	❑ Carbon Steel ❑ Stainless Steel ❑ HDPE ❑ Other: _____			
	Approx length		Avg nominal diameter	
Pumps	❑ Carbon Steel ❑ Stainless Steel ❑ HDPE ❑ Other: _____			
	Description:			
Valves	❑ Carbon Steel ❑ Stainless Steel ❑ HDPE ❑ Other: _____			
	Description:			
Small Equipment	❑ Carbon Steel ❑ Stainless Steel ❑ HDPE ❑ Other: _____			
	Description:			

SAMPLE COLLECTION		
If analytical results are *not* available for the beginning rinsate for a batch, collect two sets of rinsate samples; one set before rinsing and one set after rinsing. Both sets must consist of all the containers listed below. If analytical results are available for the beginning rinsate, only the final samples are required.		
Sample Date and Time:		
Samples:	3 x 40-ml VOA vials, no head space:	❑ Yes ❑ No
	Two 1-liter amber glass bottles:	❑ Yes ❑ No
	One 1-liter HDPE bottle, nitric acid added to pH < 2:	❑ Yes ❑ No
	Other, describe:	

Measure pH and record result:	Rinsate sample before rinsing:	Final rinsate sample:
Method used:	❑ pH meter ❑ pH paper ❑ Other: _____	
If pH meter, specify make and model:		
Record calibration results:		

Complete chain-of-custody form, specifying analysis for VOC (EPA Method 8260), SVOC (EPA Method 8270), and metals including mercury (EPA Methods 6010 and 7471). Pack samples in ice for transport to Lab.	
Date samples sent to Lab:	
Laboratory Name:	

VERIFICATION FORM FOR PIPING, PUMPS, VALVES, AND SMALL EQUIPMENT
CLEAN RINSATE STANDARD

Equipment Information
HWMU/SWMU:

Analytical Results	
Analytical reports reviewed, data quality acceptable for project decisionmaking: ❑ Yes ❑ No	
Project QA Manager Name	Project QA Manager Signature
Analytical data quality reviewed on (date):	
Data quality issues identified:	

NOTES
See Romic Southwest Closure SOP Section 7 for guidance.

Verification Results	
❑ Pass ❑ Fail	
"Pass" indicates that the Project Superintendent has evaluated the analytical results from rinsate sampling and determined that there was no net increase in contaminants of concern in the final rinsate sample as compared to a beginning rinsate sample.	
If equipment failed, Project Superintendent to decide whether to repeat decontamination	
Repeat Decontamination? ❑ Yes ❑ No	Dispose as hazardous waste? ❑ Yes ❑ No
Project Superintendent Comments:	

Project Superintendent Certification	***Project Manager Certification***
I certify that this document and all attachments were prepared under my direction or supervision. Based on my inquiry of those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.	I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who manage the system and/or are directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete.
Project Superintendent Printed Name	Project Manager Printed Name
Project Superintendent Signature	Project Manager Signature
Date	Date

APPENDIX B7
VERIFICATION FORM FOR CONCRETE

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VERIFICATION FORM FOR CONCRETE
CLEAN DEBRIS SURFACE STANDARD

UNIT IDENTIFICATION			
HWMU/SWMU Name:			
Floor Surface Area:	Sq. ft.	Wall Surface Area:	Sq. ft.
Minimum number of 1-square foot close examination locations (at least three locations or one per 500 sq ft, whichever is greater)			

FIRST THREE LOCATIONS AND GENERAL AREA			
Location 1:	Bottom of blind sump (specify location):		
Observations:			
Surface contamination: ❑ Yes ❑ No	Staining: ❑ Yes ❑ No	Residues in cracks, pits: ❑ Yes ❑ No	
Location #2:			
Note: If the subject unit is a tank farm, this location must be beneath a tank or previous location of a tank.			
Observations:			
Surface contamination: ❑ Yes ❑ No	Staining: ❑ Yes ❑ No	Residues in cracks, pits: ❑ Yes ❑ No	
Location #3:			
Note: if the subject unit is a tank farm, this location must be on an inside wall within one (1) foot of the floor.			
Observations:			
Surface contamination: ❑ Yes ❑ No	Staining: ❑ Yes ❑ No	Residues in cracks, pits: ❑ Yes ❑ No	
Remaining Areas			
Observations:			
Surface contamination: ❑ Yes ❑ No	Staining: ❑ Yes ❑ No	Residues in cracks, pits: ❑ Yes ❑ No	

ADDITIONAL LOCATIONS, if necessary; attach additional sheets as required			
Identify Location # and describe:			
Observations:			
Surface contamination: ❑ Yes ❑ No	Staining: ❑ Yes ❑ No	Residues in cracks, pits: ❑ Yes ❑ No	
Identify Location # and describe:			
Observations:			
Surface contamination: ❑ Yes ❑ No	Staining: ❑ Yes ❑ No	Residues in cracks, pits: ❑ Yes ❑ No	
Identify Location # and describe:			
Observations:			
Surface contamination: ❑ Yes ❑ No	Staining: ❑ Yes ❑ No	Residues in cracks, pits: ❑ Yes ❑ No	
Remaining Interior Surfaces			
Observations:			
Surface contamination: ❑ Yes ❑ No	Staining: ❑ Yes ❑ No	Residues in cracks, pits: ❑ Yes ❑ No	

VERIFICATION FORM FOR CONCRETE
CLEAN DEBRIS SURFACE STANDARD

Unit Identification	
HWMU/SWMU Name:	

Verification Comments

NOTES
See Romic Southwest Closure SOP Section 8 for guidance. Attach unit diagram or sketch.

Verification Results	
❑ Pass ❑ Fail	
"Pass" indicates that each surface has passed visual inspection; that is, each surface, when viewed without magnification, is free of all visible contaminated soil and hazardous waste except that residual staining from soil and waste consisting of light shadows, slight streaks, or minor discolorations, and soil and waste in cracks, crevices, and pits may be present provided that such staining and waste and soil in cracks, crevices, and pits shall be limited to no more than 5% of each square inch of surface area. [ref 40 CFR 268.45 Table 1]	
If equipment failed, Project Superintendent to decide whether to repeat decontamination	
Repeat Decontamination? ❑ Yes ❑ No	Cut out and dispose as hazardous waste? ❑ Yes ❑ No
Project Superintendent Comments:	

Project Superintendent Certification	***Project Manager Certification***
I certify that this document and all attachments were prepared under my direction or supervision. Based on my inquiry of those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.	I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who manage the system and/or are directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete.
Project Superintendent Printed Name	Project Manager Printed Name
Project Superintendent Signature	Project Manager Signature
Date	Date

APPENDIX C
Sample Collection Coding System

The following coding system will be used to identify samples collected from piping, pumps, valves, and other small equipment final rinsate.

Decontaminated items will be segregated based on the rinsate batch used for final rinsing. A number identifying each batch of decontaminated items held pending test results will be the same as the rinsate sampling number.

Material Rinsed	TF = Tank Farm (A, B, C, D) BD = Building VP = Vacuum Pot DS = Distillation Unit TH = Thin Film Unit	Indicates which specific HMU items have been rinsed.
Rinsate Batch	BB 01, 02, 03, 04, 05, 06….	BB to indicate a beginning sample (before any equipment is rinsed); a number indicates how many times the rinsate tub has been emptied and refilled during the rinsing of material from the same HMU.
Duplicates	D	Duplicate samples will be given the same number as other samples, appended with a capital “D”

Examples

TF-A-01	Sample has been taken from the rinsate submersion tub used for rinsing materials taken down from inside of Tank Farm A.
TF-C-02	Sample has been taken from the same rinsate submersion tub after it was drained and refilled with fresh water as it continued to be used for the material taken from Tank Farm C.
TF-C-02D	A duplicate sample of the second batch of rinsate from Tank Farm C.

Trip Blanks will be noted as such.

APPENDIX D

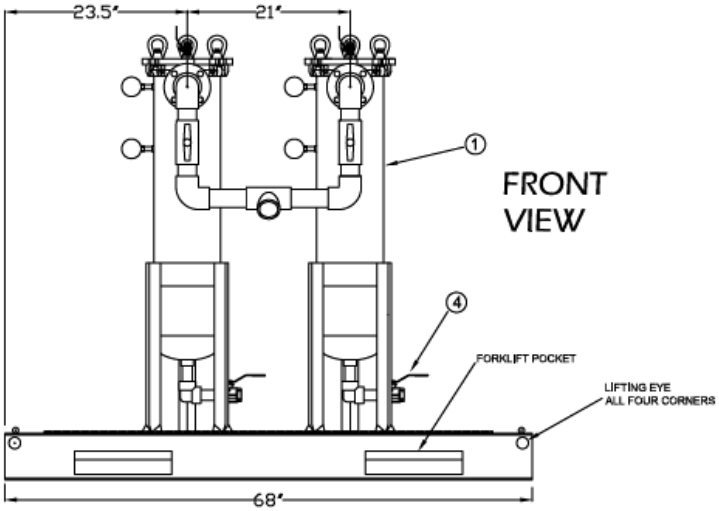
CHES Rinse Water Recycling System

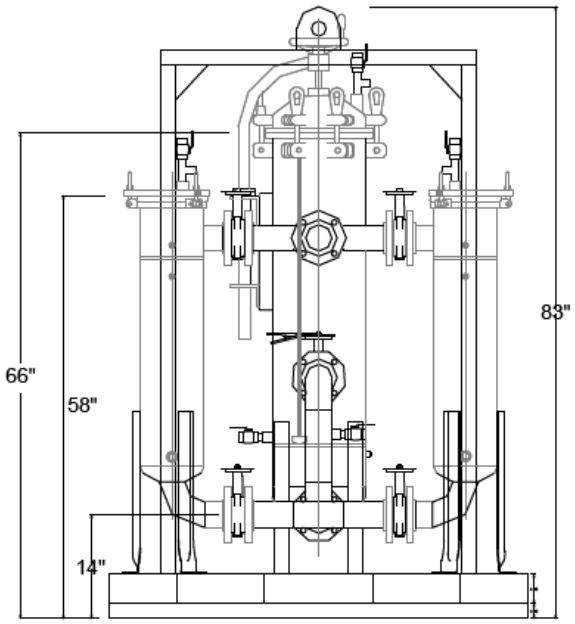
Overview:

Rinsate will be accumulated after use in a decontaminated tank or container. After 500 gallons or more of used rinsate is accumulated, it will be treated using the system described below. The treated rinsate will be transferred to a clean tank or container, from which a sample will be taken and analyzed for VOCs, SVOCs, and metals, CHES will await laboratory results before using a batch of treated rinsate.

General Description:

System comprised of three skid mounted stages. 1st stage is a 50 gpm bag filter assembly designed to capture particles greater than 100 microns. This stage is run in parallel allowing for one bag at a time to be emptied and reinstalled when inlet pressure reaches manufacturer recommended limit without shutting down operation. Spent rinsate is pumped to this stage from a storage tank. Solids collected in this stage are added to solid waste for off site disposal.





After the rinsate passes through the first stage, it is fed to the second stage of filtration. The second stage consists of 50 gpm filter assembly containing 18 -10 micron nylon wound filter cartridges. This stage also runs in parallel. Cartridges are replaced when inlet pressure reaches manufacturer recommenced limit. This stage should remove over 98 percent of the total suspended particles.

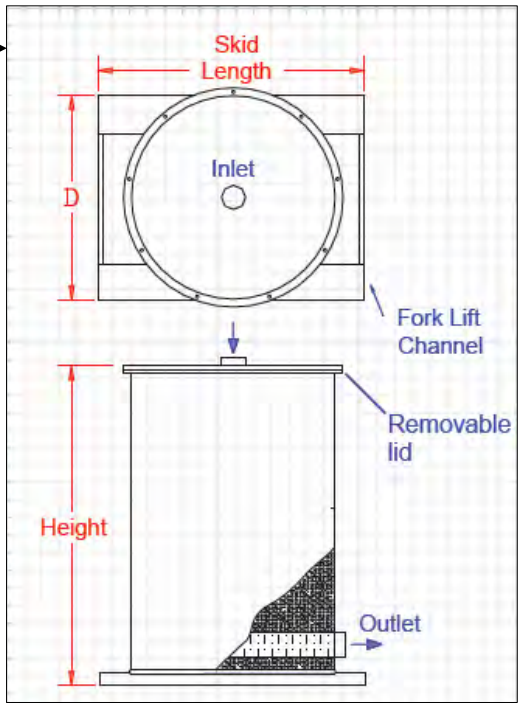
Spent cartridges are added to solid waste for off site disposal.

APPENDIX D

The final stage consists of two 50 GPM activated carbon filter canisters, or polishing which will remove organics and remaining dissolved solids. These canisters are filled with activated carbon designed to remove VOC's SVOCs, Chloride, dissolved metals and surfactants.

The system is driven by a single pneumatic pump and connected together with general camlock hoses. The discharge empties into a poly holding tank for continuous and repeated reuse of rinsewater.

Spent carbon is drained and consolidated with other waste for off site disposal



From: Perkins.Susanne@epamail.epa.gov [mailto:Perkins.Susanne@epamail.epa.gov]
Sent: Thursday, April 09, 2009 10:09 AM
To: waynek@ehs-mgr.com
Subject: Fw: FYI: Romic Southwest Field Issue/Resolution

FYI - Please include a discussion of this change in the final closure report.

Susanne Perkins
RCRA Project Manager
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----- Forwarded by Susanne Perkins/R9/USEPA/US on 04/09/2009 10:07 AM -----

From:	Cheryl Nelson/R9/USEPA/US
To:	Susanne Perkins/R9/USEPA/US@EPA
Date:	04/02/2009 10:28 AM
Subject:	FYI: Romic Southwest Field Issue/Resolution

Susanne-

I got a call from Wayne/Chris today re: Romic Southwest. An issue came up in the field that they needed to check in with us and get our concurrence on how to proceed. Here is the issue/and what we agreed on:

Chris is drilling in Tank Area B. After removing the concrete core for the borehole he discovered that the 2 inch sand layer beneath the concrete and on top of the plastic liner was saturated with about 1/4 inch of what appears to be water. The liquid is clear, no odor, and there were no hits on the PID instrumentation. They collected samples of the liquid and have sent it for VOC analysis. He did some independent research and found out that when the tank decon work was being done (e.g. the hydroblasting) in this area that the decon water was allowed to collect inside the containment (as allowed by the SAP). Approximately 5,000 gallons of water collected before they pumped it out and appropriately disposed it. Chris speculates that some of this decon water probably seeped through a joint/seam in the concrete to the liner below. He bases this on visual observations and the lack of recent rainfall.

Chris proposed to use Bentonite to seal this sand layer (as discussed in the SAP) and to continue to drill beneath the liner to collect additional samples. The Bentonite will act as a barrier to prevent migration of the liquid through the liner. He will also compare the test results from this liquid with the test results from the decon water when all data is available and based upon those results against the clean standards in the SAP will propose next steps if necessary if water turns out to be contaminated. Everything will be documented in the field and discussed in the final report.

Based upon the above, I gave him verbal permission to continue drilling beneath liner in this area.

Cheryl Nelson
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